

SCHEDULE 4

(see regulation 49(1) and (4))

Gas Containers

Part I

Definitions relating to gas containers

1. In this Schedule, the following expressions have the meanings hereby assigned to them respectively, that is to say—

“gas container” means a container fitted to a motor vehicle or a trailer and intended for the storage of gaseous fuel for the purpose of the propulsion of the vehicle or the drawing vehicle, as the case may be;

“gas cylinder” means a container fitted to a motor vehicle or a trailer and intended for the storage of compressed gas for the purpose of the propulsion of the vehicle or the drawing vehicle, as the case may be;

“compressed gas” means gaseous fuel under a pressure exceeding 1.0325 bar above atmospheric pressure;

“pipe line” means all pipes connecting a gas container—

- (a) to the engine, or to the mixing device for the supply of a mixture of gas and air to the engine; and
- (b) to the filling point on the vehicle;

“pressure pipe line” means any part of a pipe line intended for the conveyance of compressed gas; and

“reducing valve” means an apparatus which automatically reduces the pressure of the gas passing through it.

Gas containers

2. A gas container shall—

- (a) be securely attached to the vehicle in such a manner as not to be liable to displacement or damage due to vibration or other cause; and
- (b) be so placed or insulated as not to be adversely affected by the heat from the exhaust system.

Pipe lines

3.—(1) A pipe line shall be supported in such manner as to be protected from excessive vibration and strain.

(2) No part of a pipe line shall be in such a position that it may be subjected to undue heat from the exhaust system.

(3) A pressure pipe line shall be made of steel solid drawn.

(4) The maximum unsupported length of a pressure pipe line shall not exceed 920mm.

Unions

4.—(1) A union shall be so constructed and fitted that it will—

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- (a) not be liable to work loose or develop leakage when in use; and
 - (b) be readily accessible for inspection and adjustment.
- (2) A union on a pressure pipe line or on a gas cylinder shall not contain a joint other than a metal to metal joint.

Reducing valves

5. A reducing valve shall be—
- (a) so fitted as to be readily accessible; and
 - (b) so constructed that there can be no escape of gas when the engine is not running.

Valves and cocks

6.—(1) A valve or cock intended to be subjected to a pressure exceeding 6.8948 bar shall be of forged steel or of brass or bronze complying with the specification contained in Part II of this Schedule.

(2) A valve or cock shall be fitted to the pipe line to enable the supply of gas from the container to the mixing device to be shut off.

(3)(a) In the case of a pressure pipe line the valve or cock shall be placed between the reducing valve and the container and shall be readily visible and accessible from the outside of the vehicle and a notice indicating its position and method of operation shall be affixed in a conspicuous position on the outside of the vehicle carrying the gas container.

- (b) in other cases, if the valve or cock is not so visible and accessible as aforesaid, a notice indicating its position shall be affixed in a conspicuous position on the outside of the vehicle carrying the container.

Pressure gauges

7. A pressure gauge connected to a pressure pipe line shall be so constructed as not to be liable to deterioration under the action of the particular gases employed and shall be so constructed and fitted that—

- (a) in the event of failure of the pressure gauge no gas can escape into any part of the vehicle;
- (b) it is not possible owing to leakage of gas into the casing of the pressure gauge for pressure to increase therein to such extent as to be liable to cause a breakage of the glass thereof; and
- (c) in the event of failure of the pressure gauge the supply of gas to it may be readily cut off.

Charging connections

8.—(1) A connection for charging a gas container shall be outside the vehicle and in the case of a public service vehicle the connection shall not be within 610mm of an entrance or exit.

(2) An efficient shut-off valve shall be fitted as near as practicable to the filling point but where compressed gas is not used a cock or an efficient non-return valve may be fitted instead.

(3) Where compressed gas is used an additional emergency shut-off valve shall be fitted adjacent to the valve referred to in sub-paragraph (2).

(4) A cap shall be fitted to the gas filling point on the vehicle and where compressed gas is used this cap shall be made of steel with a metal to metal joint.

Trailers

9.—(1) Where a trailer is used for the carriage of a gas cylinder, a reducing valve shall be fitted on the trailer.

(2) A pipe used for conveying gas from a trailer to the engine of a vehicle shall not contain compressed gas.

Construction, etc., of system

10. A gas container propulsion system shall be—

- (a) so placed or protected as not to be exposed to accidental damage and shall be soundly and properly constructed of suitable and well-finished materials capable of withstanding the loads and stresses likely to be met with in operation and shall be maintained in an efficient, safe and clean condition; and
- (b) so designed and constructed that leakage of gas is not likely to occur under normal working conditions, whether or not the engine is running.

Part II

Specification for brass or bronze valves

Manufacture of valves

1. The stamping or pressing from which a valve is manufactured shall be made from bars produced by (a) extrusion, (b) rolling, (c) forging, (d) extrusion and drawing, or (e) rolling and drawing.

Heat treatment

2. Stamping or pressing shall be heat treated so as to produce an equiaxed microstructure in the material.

Freedom from defects

3. Stampings, pressings and the bars from which they are made shall be free from cracks, laminations, hard spots, segregated materials and variations in composition.

Tensile test

4. Tensile tests shall be made on samples of stampings and pressings taken at random from any consignment. The result of the tensile test shall conform to the following conditions—

Yield Stress— Not less than 231.6 N/mm².

Ultimate Tensile Stress— Not less than 463.3 N/mm².

Elongation on 50mm gauge length— Not less than 25%.

Note— When the gauge length is less than 50mm the required elongation shall be proportionately reduced.

The fractured test piece shall be free from piping and other defects (see paragraph 3).